an in vivo mouse Matrigel plug assay. DHTMF also inhibited phosphorylation of Akt, mTOR, and p70S6K in HUVECs and lung cancer cells.

Conclusion: Our results suggest that DHTMF inhibits angiogenesis as well as induces apoptosis via the Akt/mTOR pathway and might elicit pharmacological effects that are useful for treatment of lung cancer.

Contact: Ki Mo Kim, vsrc@kiom.re.kr

http://dx.doi.org/10.1016/j.imr.2015.04.035

P1.029

Panax ginseng C.A Meyer Ameliorates Radiation Induced Liver Injury

Hyeong-Geug Kim, Jong-Min Han, Jin-Seok Lee, Hyo-Seon Kim, Hwi-Jin Im, Chang-Gue Son

Daejeon University

Purpose: To investigate the hepatoprotective effects of Panax ginseng C.A Meyer extract (PGE) and its corresponding mechanisms using radiation-induced liver disease.

Methods: C57/BL6 mice were orally administered with PG (0, 25, 50 or 100 mg/kg) or intraperitonealy injected melatonin (20 mg/ kg) for 4 consecutive days before 15 Gy X-ray radiation exposure 1 hr after the last administration of PGE. Hepatic triglyceride (TG), histopathology, oxidative stress parameters, antioxidant components, inflammatory cytokines, and apoptosis signals were examined at 10 days after radiation.

Results: The irradiation markedly altered the steatotic alteration by histological examination and measuring hepatic TG in the tissue. Those alterations, however, were significantly attenuated by PGE. Immunohistochemistry examination showed the 4-hydroxynonenal signals were enhanced by radiation, while pre-treatment with PGE remarkably reduced them. Pre- treatment with PGE not only markedly exerted to reduce both total reactive oxygen species and lipid peroxidation in hepatic tissue level. Radiation cased remarked depletion of total glutathione (GSH) contents and decreases of antioxidant enzyme activities including superoxide distumates, catalase, and GSH-reducatse in hepatic protein levels, whereas pre-treatment with PGE significantly exerted to normalize them. Inflammatory cytokines including TNF-α, IL-1β and IL-6 were notably increased in hepatic tissues due to radiation, and then these were efficiently attenuated by pre-treatment with PGE. Moreover, pre-treatment with PGE significantly blocked the apoptotic signals by measuring TUNEL assay, western blot, and gene expression levels in hepatic tissue.

Conclusion: Collectively, above findings evidenced that PGE beneficially prevent from RILI, and its corresponding mechanisms involved the inhibition of fat accumulation, oxidative stress, inflammatory cytokines, and apoptosis signals.

Contact: Hyeong-Geug Kim, winakim@dju.kr

http://dx.doi.org/10.1016/j.imr.2015.04.036

P1.030

Development of Basic Technologies for the Domestic Cultivation of Herbal Medicine Resources at KIOM (Korea Institute of Oriental Medicine)

Young Min Kang, Byeong Cheol Moon, Wook Jin Kim, Kyeong Suk Han, Ka Youn Lee

Korea Institute of Oriental Medicine

Purpose: Several species of medicines have been cultivated national widely in Korea. However, there were many problems if environmental factors could not be fixed in cultivation and analyzing useful compounds (alkaloids, terpenoids, phenolic compounds or others) from wild collecting plant materials. Development of basic technologies for the domestic cultivation of herbal medicine resources would be needed for propagation of important Korean herbal medicines, continually.

Methods: First of all, Authentication of medicinal plant species using DNA barcode techniques would be necessary and only proper plant species would be propagated quickly. Second, propagation technology would be either in vitro tissue cultures (callus, adventitious root, multiple shoot, and somatic embryo) or seed germination improvement (temperature, moisture, nutrients, etc) for optimized generation. Third, biotechnological approaches (aboitic/biotic elicitors, bioreactor, and single cell cloning) have been manipulated for enhanced metabolite productions and rapid propagation in Korean medicinal plants.

Results: Pinellia ternate, Polygonum multiflorum, Fritillaria verticillata, Asarum sieboldii, Trichosanthes kirilowii, Paeonia japonica, and Cimicifuga dahurica were described by the Korean Pharmacopoeia Tenth Edition (2012) about the origins of herbal medicines in Korea. They could provide for functional foods, treatment for specific diseases, and promo ting human health. For in vitro tissue cultures, various plant media (MS, B5, CHU, LS, DJ, QL, NM, WPM, White, and AR) were tested and various temperatures were tested between 15 and 30 °C. To optimize propagation of important herbal medicinal plants were performed either in vitro tissue cultures and seed germination improvement, properly.

Conclusion: Therefore Korean medicinal plants were used to introduce and to emphasize about production of useful compounds and application of propagation of Korean medicinal plants in this report.

Contact: Young Min Kang, ymkang@kiom.re.kr

http://dx.doi.org/10.1016/j.imr.2015.04.037